Voice Disorders

CSD 614
Middle-Aged Voice

• Male – 100-150Hz Mean Fundamental Frequency (MFF)
  – 125 Hz Average
• Female – 180-250 Hz MFF
  – 225 Hz average
• 20.90 – 24.60 seconds Mean Phonation Time (MPT)
Geriatric Voice

• Male – slightly higher MFF and continues to move upward
• Female – 132-146 Hz MFF (70-94 years)
  – 201 Hz average (continues to lower)
• 14.20 – 18.10 seconds Mean Phonation Time (MPT) (66-93 years)
• Based on overall health issues
Important Measures

• Jitter (frequency perturbation) – variations in vocal frequency
  – Normal voice can sustain a vowel with >1% jitter

• Shimmer (amplitude perturbation) – cycle to cycle in vocal intensity
  – <1% makes patient sound dysphonic

• Can indicate problems before they can be seen otherwise
Vocal Quality

- Physical complexity of the laryngeal tone
  - Hoarseness
  - Harshness
  - Strain-Strangle
  - Breathiness
  - Glottal Fry
  - Diplophonia
  - Stridency
Evaluation

- Case History
- Oral Peripheral Examination
- Hearing Screening
- Speech-language Sample
  - Team-oriented approach
  - Perceptual and instrumental tools
Instrumental Evaluation

- Indirect Laryngoscopy
- Direct Laryngoscopy
- Flexible Fiber-Optic Laryngoscopy
- Endoscopy
- Spectrograph
- Videostroboscopy
- Electroglottography (EGG)
- Electromyography (EMG)
- Aerodynamic Measurements
- Pitch Measurements
Examination of Vocal Cords

- Normal vocal cords
- Contact ulcer
- Polyp
- Nodules
- One-sided paralysis
- Cancer

Examination Findings

http://www.merck.com/mmhe/sec19/ch222/ch222e.html
Video Stroboscopy
Perceptual Evaluation

- Pitch Assessment
- Loudness Assessment
- Resonance Assessment
- Respiration Assessment
- Phonation Assessment
Resonance

• Hypernasality
• Hyponasality
• Assimilative Nasality
• Cul-de-Sac Resonance
Phonation
(physically and neurologically based)

- Granuloma
- Hemangioma
- Leukoplakia
- Hyperkeratosis
- Laryngomalacia
- Laryngeal Trauma
- Paradoxical Vocal Fold Motion
- Gastroesophageal Reflux Disease
- Paralysis and Ankylosis
- Spastic Dysphonia
- Neurological Diseases (see following slide)
Granuloma
Leukoplakia
Neurological Diseases

- Multiple Sclerosis (MS)
- Myasthenia Gravis
- Amyotrophic Lateral Sclerosis (ALS)
- Parkinson’s Disease
Laryngectomy

http://student.bmj.com/issues/08/03/education/124.php
Blom-Singer Tracheoesophageal Puncture

http://www.webwhispers.org/library/tep.aiff
Esophageal Speech

• A. Tongue press to inject air into esophagus.
• B. Air enters esophagus.
• C. Air released from esophagus to produce sound.
• D. Sound shaped into speech.
• E. Location of tissue vibration for sound.

Electrolarynx

http://www.bbc.co.uk/mediaselector/check/tyne/realmedia/videoation/tyne_manfrommars?size=4x3&bce=C0C0C0&nbrem=1&bbrem=1
Abuse-Based Phonation Disorders

- Vocal Nodules
- Polyps
- Contact Ulcers
- Vocal Fold Thickening
- Traumatic Laryngitis
Vocal Nodules

http://www.med.nyu.edu/voicecenter/resources/photo/vc_nodules.html
Vocal Polyps

http://www.hopkinsmedicine.org/voice/images/polyp.jpg

http://www.clas.ufl.edu/users/rahul/4250/polyp.jpg
• Loudness and Pitch Disorders
• Psychogenic Voice Disorders
• Gender Issues